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## PROFESSOR PROKOSCH ON THE IE. SONANT ASPIRATES

In *Modern Philology* (Vols. XV–XVI) we have an excellent résumé of the problem of the sonant aspirates down to Ascoli's solution. For Ascoli's *bh*, etc., Professor Prokosch sets up voiceless spirants *f*, etc. (generally designated by the Greek aspirates  $\phi$ , etc.).

*Gondi-Burmese*.—Sonant aspirates do not conform to any European habits of articulation,<sup>1</sup> and the type of articulation is rare. Outside of Sanskrit (including modern Indic vernaculars) sonant spirants are found only in non-Aryan Himalayan races, in Gondi, and in Burmese, all being tongues contiguous with Sanskrit. These neighbors may have infected Sanskrit with their articulation. This is our author's preferred explanation, though he stoutly insists that Sk. *bh* may have arisen by spontaneous phonetic process from IE. *f* > pre-Indo-Iranian  $\beta$  (sonant spirant, and so throughout this paper) > Sk. *bh*.<sup>2</sup> Readers not skilled in phonetics will be sure to follow our author in his personal preference for a Gondi articulation of the Sanskrit sonant aspirates. Now the Gondi are a Dravida stock (Turanian-Dravida, according to our author), and the Dravida tongues have no [certainly original] sonant aspirates.<sup>3</sup> So we have the suggestion of intercourse between Gondi and Burmese.

Here I cannot go with Professor Prokosch at all. Gondi speech is full of infections from Sanskrit or the Indic vernaculars. The oldest Burmese literature is a Buddhistic Pali literature and I feel bound to conclude that the Gondi and Burmese (and Himalayan) sonant aspirates are an infection from Sanskrit, Pali, etc., and that

<sup>1</sup> Europeans cannot now, without great effort, make fire with a drill, but once they must have done so as easily as any contemporary savage folk.

<sup>2</sup> In explaining the progression from  $\beta$  to *bh*—which fits nowhere into the progressive schemata in his § 14—the author partly follows Meringer in supposing a change from  $\beta$  to *b $\delta$*  by way of affrication, and thus expresses himself: "in this case the crescendo of the sound ('stopping' in the resonance-chamber) must first have affected only the beginning of the sound, while its off-glide must have been enunciated with mouth opened more and more, instead of with the narrowing characteristic of the spirants. This implies an older period of increased muscular intensity and a later of relaxed intensity in Sanskrit. Such a reconstitution of the physiological conditions is admissible, but susceptible neither of proof nor refutation. As it does not fit into a larger scheme the propriety of the reconstitution is not to be established."

<sup>3</sup> When the lingual articulation of Sanskrit is charged to the Dravida stock there is room for doubt. The older stratum of linguals arose by Fortunatov's law in reductions of IE. *lt*, etc., to *t*, etc. There are also *d*'s and *dh*'s of palatal provenience.

it was not the other way about; see *Encyc., Brit.* IV, 480, and Wackernagel, *Ai. Gram.*, I, p. xxxvii. It is then for our author to make it seem probable that Sk. *bh* systematically developed out of his *f* rather than that *bh* was inherited from Indo-European. It is also to be noted here that, in order to relieve the systematic difficulty in proceeding from IE. *f* to Greek *ph* ( $\phi$ ), Professor Prokosch sought, without finding, evidence for precursors of the Greek invaders who did not have the power, or at least lacked the habit, of articulating the surd spirants (*f*, etc.).

Because, I suppose, of the beautifully consistent tables that may be constructed for the Germanic sound shiftings Professor Prokosch, as will appear from the last footnote, is full of the desire to find consistent physiological progressions suited to the "genius" (as it used to be called) of the several tongues, and for this view he can—and does—particularly plead French warrant. He therefore presents, disavowing all claim of innovation, a scheme of phonetic change as due (1) to crescendo or diminuendo of the expiration; (2) to muscular tightening or relaxation in the organs of speech (let us say to taut and loose articulation).

Against the doctrine of uniformity (uniform direction, consistency) of sound change in a language I lack phonetic skill to argue at large, but it may be worth while to recall a few instances where uniformity fails. Of the Germanic surd spirants *th* ( $\theta\phi$ ) *f* *ch* ( $\chi$ ) the last became *h* (the aspirate) in English, and to adult English lips *ich* (or *ach*) is pronounceable only after severe practice, while *th* and *f* remain easy. In German (I speak now of the articulation only), *th* is unpronounceable but *f* and *ch* are quite vocable. In Latin, in initial position, only *f* ( $<f$  and *th*) remains, while *ch* has become the aspirate (*h*); in the interior (I speak here of intervocalic position only), *f* and  $\phi$  (*th*) became *b* and *d*, but *h* remained intact. In Sanskrit, in all free positions, IE.  $g^1h$  (and  $g^2h$  before IE. *e*) becomes the aspirate (*h*),<sup>1</sup> and we also have the variants *dh/h*

<sup>1</sup> Herein our author sees proof of his contention for IE. (sonant spirant) *y* whence, with loss of sonancy (voice), *h*. My own practice in learning to articulate German *ich*, *ach* makes me quite realize the possibility of  $y > h$ —with scant change in articulation, chiefly relaxation of the glottis—but, unlike the Greek, true Sk. *y* ( $i$ ) never yielded *h*; why, then, the harder construct  $y < g^1h$ ? However, if we give full value to the author's doctrine that Sk.  $*j^1h$  ( $< g^2h$ ) must have yielded [ $dj$ ], we may perhaps find therein a reason for  $dh < d^1j(h) + t$ . Or does  $dh$  exhibit a lisping of Indo-Iranian  $z^1$ ? Cf. OPers.  $d(\phi)$  as a variant of  $z$ .

(see Wackernagel *Ai. Gram.*, I, §217a) and *bh/h*, though *dh*, *bh*, *gh*, are normal and thoroughly alive.<sup>1</sup> Again, in Sanskrit the assibilation of IE.  $k^1 > \zeta$  ( $\zeta$ ) was completed and remained intact, but we have  $g > j$ . In Old Irish we have  $k^w > c$ ,  $g^w h > g$ , but  $g^w > b$ . Disregarding in part the intermediate stages, in Armenian, as in German (first sound shifting), IE. *bh* shifts to *b* and *b* to *p*; but IE. *p* shifts (through *ph*, the aspirate) to Germ. *f*, while in Armenian  $p > ph$  yielded *h*,<sup>2</sup> though pre-Armenian *th* and *kh* remained intact. Surely this is evidence enough of unequal treatment of consonants of the same rows and columns (I refer to the tabular arrangements of the consonants).

And now to tabulate the results of Professor Prokosch's treatment, limiting myself to *bh* (his *f*).

*Sanskrit*.—IE.  $f(\phi) > \beta > bh$  (*bh* is a sonant aspirate, possibly a Burmese articulation).

*Greek*.—IE.  $f > ph$  (surd aspirate), written  $\phi$  in Greek. (In German borrowings Lithuanian writes *p* for German *f*; Slavic writes *b*. The pre-Greek population may have lacked the surd spirants.)

*Latin*.—IE. *f* remains *f* (interior *b*).

*The other tongues*.—IE.  $f > \beta > b$ . (This change is due to increased muscular tension. The stage  $\beta$  assumed on account of necessary [?] assimilation processes. But  $f > b$  is admissible, supposing very weak expiration with normal tension of the speech organs [articulation] and coincident "stopping" in the glottis and resonance chamber.)

As I understand Ascoli's theory we have:

*Sanskrit*.—IE.  $bh > bh$ . (Here I raise the question whether *h*, i.e., the aspiration, was voiced [*H*]. The assumption of *H* may perhaps make easier Bartholomae's law whereby IE. *bdh* [*?H*] is the product of *bht*. Or was IE. *bh* a whispered sound [see below]?)

*Greek*.—IE.  $bh > ph$  (written  $\phi$ )  $>$  late Greek *f*. (Here the only early change, shared by pre-Italic, is loss of voice.)

*Latin*.—IE.  $bh > *ph > f$  (interior *b* in free position). (That Italic reached *f* a thousand years earlier than Greek offers not the

<sup>1</sup> Why is not the partially affected change of  $dh > h$  a move in the same direction as the change of  $jh$  to *h*?

<sup>2</sup> Sometimes for *h* we find *y*, which Meillet regards as a precursor to *h*, but the introduction of voice (?) in *y* and its subsequent elimination in *h* is not clear to me.

least reason why both tongues did not reach the *ph* stage by the same vocal route. To state one difference between these tongues, Greek was a language of even stress [musical accent], Latin of comparatively violent stress [cf. *hospes* reduced from *hosti-potis*], and the written word, literature, had a great stabilizing influence—all that we know of the old languages is the written word—and Greek had literature long before Latin.)

*The other tongues.*—IE. *bh* (?>β)>*b*. (If *ph*>*f* is a most normal direction of change due to increase in the force of expiration, *bh* [which is but *ph*+voice, produced by tensing the vocal chords] should by the same token yield β [whence *b*].)

As Professor Prokosch found it convenient to assume that his IE. *f* tended dialectally to β it might likewise be assumed for Ascoli's sonant aspirate *bh* that there was a variation between *H* (voiced aspiration) and *h* (unvoiced aspiration). Then we should have Sk. *bh*<*bH*=*H*, Greek *ph*(ϕ)<*bh*, Italic \**ph*(>*f*)<*bh*. For the other tongues I do not know whether *bH* or *bh* might offer the easier point of departure. Again, IE. *bh* may have had a "whispered" articulation (or variant). By way of illustration I take the dialects of middle Germany, whose people on going north are supposed to say *pirne* (like South Germans), but on going south say *birne* (like North Germans). From such a whispered *bh* may have come Sk. *bh*, but Greek (and pre-Italic) *ph*.

*Bartholomae's law.*—I find the new doctrine of IE. *f* instead of *bh* hard to reconcile with Bartholomae's law. Taking now for our example the dentals, *dh*+*t* yielded (a) IE. *ddh*. But often there was an inhibition of the law so that *dh*+*t* yielded (b) IE. *tt*. As a matter of fact, only the Indo-Iranian tongues fully exhibit the operation of the rule (a); its inhibition (b) is attested most clearly in contrast formations in Indo-Iranian, and at large in the other tongues. The inhibition of the law was due to resuffixation, as to which it is enough to refer to Bartholomae in *Gr. Iran. Phil.*, I, §§52, 3; 53. ii. In brief, the past passive participle suffix *to* was so full of, or so filled with, semantic significance that the *ddho* participles were remade as *d-to*>*tto* participles. This latter type of participle and *ti* derivative (Greek πύστις: Av. advb. *apaiti-busti* X Sk. *buddhi*; in Greek π for ϕ as in πείσονται) alone survives as a

formal category outside of Indo-Iranian. In Latin, however, a kind fate has left one absolutely unimpeachable example attesting the treatment of IE. *ddh* in interior position, viz., *crēdo*: Sk. *ḡrad-d[h]adhāti*. To this example Solmsen called attention in *IF. Anz.*, 19. 30, where he was expressly debating the words *custos*, *aestas*, *hasta*, the very words to which Professor Prokosch appeals as exhibiting in their *st* the Latin sounds that should correspond to Sk. *ddh* (<IE. *dh+t*).

Nothing is more hazardous than to infer phonetic laws from morphological reconstructions; and nothing justifies us in attaching the abstract suffix *tāt(i)* directly to the root of Lat. *aedes*; whether we write *aīdh-tāt(i)* or *aiθ-tāt(i)* we shall be but making an unsupported reconstruction, not entitled for one moment to rank with the reality of *credo* and OIr. *cretim* (on *t* < *ddh* see Pedersen, *Kelt. Gram.*, §§69, 51). For *aestas* and *hasta* Solmsen has shown a better way and has referred to the number of equally possible (and equally uncertain) explanations of *custos*.<sup>1</sup> At all events *credo* definitely eliminates Lat. *st* as the product of *dh+t*.

*Grassmann's law*.—In Greek *τῖθημι* (and in Sk. *dādhāti*), by Professor Prokosch's own admission, the actual difference between *τ* and *θ* (*d* and *dh*) lies in the loss of the aspiration; cf. (but with *b* for *p*) *bitha* from *phitha* in Nyamwezi (see Meinhof, *Introd. African Lang.*, p. 67). In plain language, if Ascoli's reconstructions are correct, when successive aspirates were to be uttered in successive syllables each of these tongues lost the "puff" of its first aspirate, its overcharge of breath—by way of economy, to save the puff for the next. This seems a perfectly normal disposition of effort. It is much more complicated when Professor Prokosch explains the Greek change of *τh* (<*ḡ*) *τh* to *τ θ* (= *th*) as due to increased tension

<sup>1</sup> Gothic *huzds* (hoard)—but see Falk-Torp, *Norw.-Dan. Etymol. Wbch.*, s.v. "hose"—may genuinely represent IE. *kuddhos* (hidden) and so, as an isolated word, fall under Bartholomae's law (*a*). Also Lat. *nōdus* (knot) may be identical in its phonology (vocalism and gender as in *φόρος*) with Sk. *naddha* (bound). The actuality of *dh* in the root *nedh* has been unduly questioned. It is attested beyond all doubt in *vōdos* (bastard); cf. for the semantics Sk. *bandhula* (bastard); also, with *us* suffix, Sk. *nāhus* (neighbor) and dat. plur. *nadbhyās* (see Grassmann and the Petersburg lexica). In Sanskrit the alternation *dh/h* is far too common to be challenged in *naddhā:nāhyati*; cf. particularly nom. *upānāt*, acc. *upanāham* (scandal). The correlation (rhyme) of Lat. *necto* with *plecto*, *flecto* leaves it remote from Sk. *nāhyati*. As for the root stage *ned*, I ascribe its de-aspiration to reduction forms *nd(h)*, as in Greek *ἀνίκη* Lith. *néndrė*: OIr. *nenaid* (nettle).

in initial position *conditioned of course on dissimilation* (italics mine). Similarly for Sk. *d[h] dh*.

*Final summary*.—The differences between Ascoli (as I understand him) and Professor Prokosch may be tabulated as follows. For the purpose of brevity the articulation of the aspirates (their aspiration) will be designated by the word “puff,” of the spirants by the word “hiss.”

*Ascoli*.—In Sanskrit, *bh > bh* (no change): Greek, *bh > ph* (loss of voice); Italic, *bh (> ph [loss of voice]) > f* (puff > hiss); other tongues, (1) *bh > b* (loss of puff) or (2) *bh > β* (puff > hiss) > *b* (loss of hiss).

*Prokosch*.—In Sanskrit, *f > β* (gain of voice) > *bh* (hiss > puff; possible intruding [Gondi-Burmese] articulation invoked); Greek, *f > π* (loss of hiss) > *ph* (*φ*) (gain of puff; possible intruding non-Greek articulation invoked); Italic, *f > f* (no change); other tongues, *f > β* (gain of voice) > *b* (loss of hiss). Proof of intruding non-Indo-European articulation would twice be welcomed.

In another form we may represent the changes thus:

<b>Ascoli</b>			
<i>bh &gt; ph</i>	<i>son. aspirate &gt; surd aspirate</i>	loss of voice	2
<i>bh &gt; b</i>	<i>aspiration lost</i>	loss of puff	1/0
<i>?β &gt; b</i>	<i>son. spirant &gt; sonant stop</i>	loss of hiss	0/1
<i>ph &gt; f</i>	<i>surd aspirate &gt; surd spirant</i>	puff > hiss	1
<i>bh &gt; β</i>	<i>son. aspirate &gt; son. spirant</i>	puff > hiss	0/1
<b>Prokosch</b>			
<i>f &gt; β</i>	<i>surd spirant &gt; son. spirant</i>	gain of voice	2
<i>p &gt; ph</i>	<i>surd &gt; surd aspirate</i>	gain of puff	1
<i>β &gt; bh</i>	<i>son. spirant &gt; son. aspirate</i>	hiss > puff	1
<i>f &gt; p</i>	<i>surd spirant &gt; surd stop</i>	loss of hiss	1
<i>β &gt; b</i>	<i>son. spirant &gt; sonant stop</i>	loss of hiss	1

Professor Prokosch has skill to show, none more, by what articulatory and expiratory movements putative *f* (etc.) could be converted into *bh πh*; and his desire to transpose backward into Indo-European the German phonetic habit, so to speak, is keen. But his arguments to prove for Indo-European spirantic, rather than aspirate, articulation are entirely inadequate to that end.

The writer does not claim—he would be the first to disavow for himself—skill in physiological phonetics. Perhaps that is why

he cannot realize, either in the original paper or in the accompanying rejoinder of Professor Prokosch, how the new theory achieves a gain over Ascoli's, even as regards phonetic streams of tendency (systematic phonetics). If the IE. phonetic system had no aspirates their introduction into Sanskrit and Greek implies in fact a cross-current in the original system. On the other hand, the passage of aspirates into spirants is phonetically simple and well attested in many tongues (cf. outlying examples in Meinhof, p. 61). The writer, for reasons of personal regard toward Professor Prokosch, could not have felt sarcastic intention toward him nor toward his scientific work; and he pleads not guilty to any form of speech in the least sarcastic.

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#### REPLY<sup>1</sup>

I am indeed thankful to Professor Fay for his detailed consideration of my article. That a scholar of his remarkable keenness, although dissenting from me, is so utterly unable to advance any valid arguments against my theory, is nearly as reassuring to me as its acceptance by others: Collitz (*AJPh.*, XXXIX, 415: "Professor Prokosch in my opinion is right in holding that the alleged voiced aspirates were originally, in all probability, unvoiced spirants"), Tuttle (see below), Lotspeich (*JEGPh.*, XVII, 168: a tentative approval of an earlier statement of my view in the Introduction to *Sounds and History of the German Language*, written in 1915).

Professor Fay seems to base his opposition on these cardinal points: (1) my suggestion of native Indian origin of Sc. *bh*, *dh*, *gh*; (2) my reference to the chronological contrast between the Latin and Greek developments; (3) my apparent neglect of irregular developments of certain sounds; (4) Bartholomae's and Grassmann's laws; (5) most of all, though by implication, the general principles of my method.

<sup>1</sup> This reply was submitted by Professor Fay over one year ago as part of his own article which appears in this number of *Modern Philology*. Professor Prokosch intended in view of the death of Professor Fay to withdraw his reply. It seemed best, however, in view of Professor Fay's view of the matter, to allow it to appear as originally planned.

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